

CLAIMS

What is claimed is:

1. An apparatus for mounting two cameras for stereo graphic imaging with the
5 capability to control the convergence of said two cameras, the capability to adjust the
position of the image focal plane in one of said cameras with respect to the image focal
plane in the other said camera, such that the two said cameras are correctly focused
on the same image, the capability to adjust the spacing between the two cameras such
as to mimic the average distance between human eyes, and the capability to adjust the
10 two cameras such that the two cameras, while being converged, rotate around the
same image (nodal) point, comprising:

(a) two gears, friction discs, or pulleys with a feature on the top surface for
mounting a camera (collectively "gear"), each said gear mounted on a separate shaft
and bearing assembly, the rotation of each said gear synchronized to the rotation of the
15 other said gear, said gears able to rotate in either direction; and

(b) a gear, friction disc, or pulley mounted on a separate shaft and bearing
assembly capable of simultaneously driving the synchronized rotation of the said gears
("gear driver"); and

(c) means for rotating said gear driver to cause the synchronized rotation of said
20 gears in either direction, thereby enabling the convergence of said cameras to be

adjusted; and

(d) a non-adjustable mounting for one of said cameras affixed to one of the said gears such that when one of said cameras is attached to said non-adjustable mounting, said camera remains in a fixed position with respect to said gear; and

5 (e) an adjustable mounting for the other said camera affixed to the other said gear comprised of two brackets held together by three adjustable screws and a spring located centrally among said adjustable screws, said adjustable screws applying force opposite to said spring such as to keep said two brackets separated, but permitting the pitch, roll and distance between said two brackets to be adjusted by changing the relative length of said adjustable screws to each other; and

10 (f) means for turning said adjustable screws in said adjustable mounting such as to alter the pitch, roll and distance between said two brackets, thereby enabling the image focal plane of said camera mounted to said adjustable mounting to be aligned with the image focal plane of the other said camera mounted on the other said non-adjustable mounting; and

15 (g) two adjustable dovetail slides onto which said gears are mounted such as to permit the adjustment of the distance between the center of rotation of each said gear, thereby enabling the effective center to center distance between said cameras to be increased or decreased; and

20 (h) means for moving said adjustable dovetail slides onto which said gears are mounted as to permit the effective center to center distance between said cameras to

be increased or decreased; and

(i) two adjustable dovetail slides mounted on top of said gears such as to permit the adjustment of the forward or backward position (along the optical line of sight) of each said camera, thereby enabling the image (nodal) point of each said camera to be individually adjusted along its respective optical line of sight; and

5 (j) means for moving said adjustable dovetail slides on top of which said gears are mounted as to permit the adjustment of the forward or backward position (along the optical line of sight) of each said camera, thereby enabling the image "nodal" point of each said camera to be individually adjusted along its respective optical line of sight.

10 2. A method of controlling the convergence of two cameras comprising the steps of:

(a) providing two gears, friction discs, or pulleys with a feature on the top surface for mounting a camera (collectively "gear"), each said gear mounted on a separate shaft and bearing assembly, the rotation of each said gear synchronized to the rotation of the other said gear, said gears able to rotate in either direction; and

15 (b) providing a gear, friction disc, or pulley mounted on a separate shaft and bearing assembly capable of simultaneously driving the synchronized rotation of the said gears ("gear driver"); and

(c) providing means for rotating said gear driver to cause the synchronized rotation of said gears in either direction, thereby enabling the convergence of said
20 cameras to be adjusted.

3. A method of aligning the image focal plane of two cameras comprising the steps of:

(a) providing a non-adjustable mounting for one of said cameras affixed to one of the said gears such that when one of said cameras is attached to said non-adjustable mounting, said camera remains in a fixed position with respect to said gear; and

5 (b) providing an adjustable mounting for the other said camera affixed to the other said gear comprised of two brackets held together at three points by adjustable screws with a spring located in the middle of said adjustable screws applying force opposite to said adjustable screws such to keep said two brackets separated, but permitting the pitch, roll and distance between said two brackets to be adjusted by turning said adjustable screws; and

10 (c) providing means for turning said adjustable screws in said adjustable mounting such as to alter the pitch, roll and distance between said two brackets, thereby enabling the image focal plane of said camera mounted to said adjustable mounting to be aligned with the image focal plane of the other said camera mounted on the other said non-adjustable mounting.

15 4. A method of adjusting the center to center distance between two cameras comprising the steps of:

20 (a) providing two adjustable dovetail slides onto which said gears are mounted such as to permit the adjustment of the distance between the center of rotation of each said gear, thereby enabling the effective center to center distance between said

cameras to be increased or decreased.

5. A method of adjusting the image (nodal) point of two cameras comprising the steps of:

(a) providing two adjustable dovetail slides mounted on top of said gears such as to permit the adjustment of the forward or backward position (along the optical line of sight) of each said camera, thereby enabling the image (nodal) point of each said camera to be individually adjusted along its respective optical line of sight.